



Volunteer Lake Assessment Program Individual Lake Reports

FOREST LAKE, WHITEFIELD, NH

MORPHOMETRIC DATA

Watershed Area (Ac.):	1,250	Max. Depth (m):	6.4	Flushing Rate (yr ⁻¹)	1	Year	Trophic class	KNOWN EXOTIC SPECIES
Surface Area (Ac.):	192	Mean Depth (m):	2.8	P Retention Coef:	0.75	1990	MESOTROPHIC	
Shore Length (m):	3,500	Volume (m ³):	2,204,000	Elevation (ft):	1106	2005	MESOTROPHIC	

The Waterbody Report Card tables are generated from the DRAFT 2014 305(b) report on the status of N.H. waters, and are based on data collected from 2004-2013. Detailed waterbody assessment and report card information can be found at www.des.nh.gov/organizations/divisions/water/wmb/swqa/index.htm

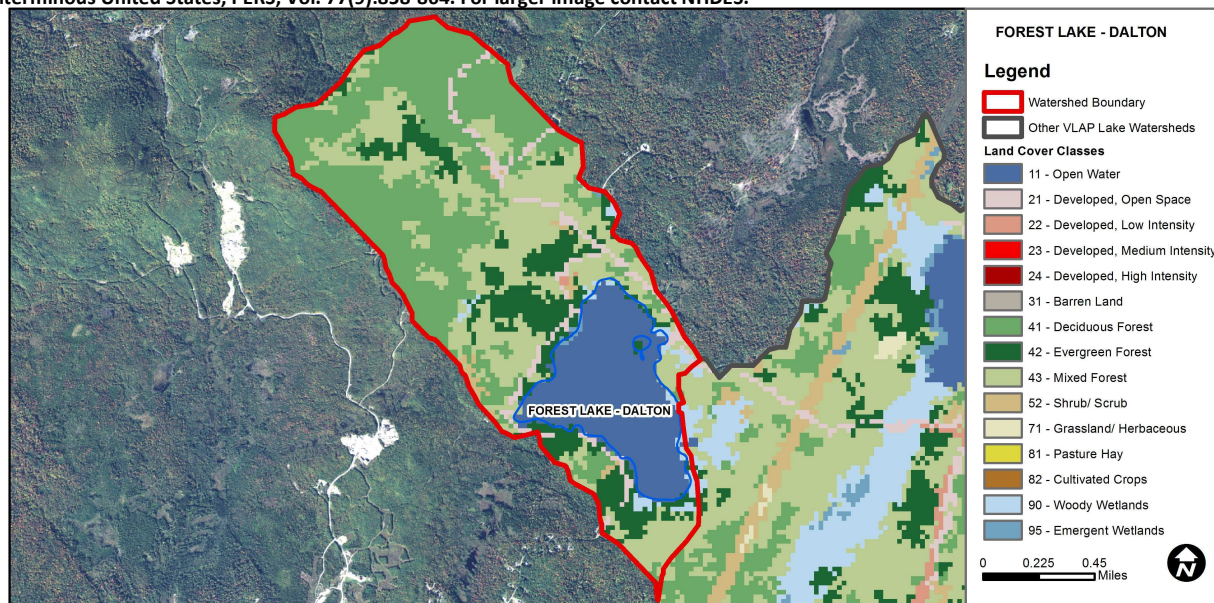
Designated Use	Parameter	Category	Comments
Aquatic Life	Phosphorus (Total)	Good	The calculated median is from 5 or more samples and is < indicator and > 1/2 indicator and the chlorophyll a indicator is okay.
	pH	Slightly Bad	>10% of samples exceed criteria by a small margin (minimum of 2 exceedances).
	Oxygen, Dissolved	Good	There are at least 10 samples with one, but < 10% of samples, exceeding criteria.
	Dissolved oxygen satura	Good	There are at least 10 samples with one, but < 10% of samples, exceeding criteria.
	Chlorophyll-a	Good	The calculated median is from 5 or more samples and is < indicator and > 1/2 indicator.
Primary Contact Recreation	Escherichia coli	Good	There are geometric means and all geometric means are < geometric mean criteria; and there has been a single sample exceedance.
	Chlorophyll-a	Very Good	There are a total of at least 10 samples with 0 exceedances of indicator.

BEACH PRIMARY CONTACT ASSESSMENT STATUS

FOREST LAKE - FOREST LAKE STATE PARK	Escherichia coli	Very Good	Where there are no geometric means, all bacteria samples are < 75% of the geometric mean. Where there are geometric means all single bacteria samples are < the SSMC and all geometric means are < geometric mean criteria.
--------------------------------------	------------------	-----------	---

WATERSHED LAND USE SUMMARY

Fry, J., Xian, G., Jin, S., Dewitz, J., Homer, C., Yang, L., Barnes, C., Herold, N., and Wickham, J., 2011. Completion of the 2006 National Land Cover Database for the Conterminous United States, PERS, Vol. 77(9):858-864. For larger image contact NHDES.



Land Cover Category	% Cover	Land Cover Category	% Cover	Land Cover Category	% Cover
Open Water	17.1	Barren Land	0	Grassland/Herbaceous	0
Developed-Open Space	3.91	Deciduous Forest	34.75	Pasture Hay	0
Developed-Low Intensity	0.1	Evergreen Forest	13.03	Cultivated Crops	0
Developed-Medium Intensity	0	Mixed Forest	26.84	Woody Wetlands	1.6
Developed-High Intensity	0	Shrub-Scrub	0.94	Emergent Wetlands	0.23



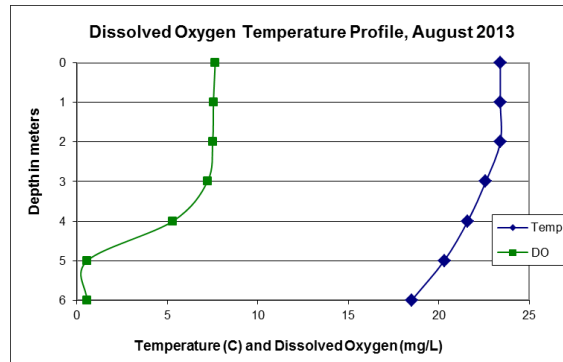
VOLUNTEER LAKE ASSESSMENT PROGRAM INDIVIDUAL LAKE REPORTS

FOREST LAKE, WHITEFIELD/DALTON, NH

2013 DATA SUMMARY

OBSERVATIONS AND RECOMMENDATIONS (Refer to Table 1 and Historical Deep Spot Data Graphics)

- CHLOROPHYLL-A:** Chlorophyll levels were very low in August and well below the state median. Visual inspection of historical data indicates chlorophyll levels fluctuate from year to year.
- CONDUCTIVITY/CHLORIDE:** Deep spot, tributary and near shore conductivity levels are average for most NH lakes and approximately equal to the state median. Visual inspection of historical data indicates increasing (worsening) epilimnetic (upper water layer) conductivity.
- E. COLI:** E. coli levels were well below state standards for public beaches and surface waters.
- TOTAL PHOSPHORUS:** Deep spot phosphorus levels were low in July and below the state median. Tributary and near shore phosphorus levels were low except for State Beach Brook which was elevated. Turbidity was also slightly elevated at State Beach Brook which may have contributed to the elevated phosphorus. Visual inspection of historical data indicates epilimnetic phosphorus fluctuates from year to year.
- TRANSPARENCY:** Transparency was better than the state median, and was much greater measured with the viewscope than without the viewscope. Visual inspection of historical data indicates relatively stable transparency.
- TURBIDITY:** Deep spot, tributary and near shore turbidity was low except for State Beach Brook. Low tributary flows or a beaver dam located upstream may have contributed to the turbidity.
- pH:** Deep spot pH was sufficient to support aquatic life, however has been at critical levels in the past. Visual inspection of historical data indicates epilimnetic pH fluctuates widely from year to year.
- DISSOLVED OXYGEN:** Dissolved oxygen levels were much lower in the hypolimnion than in the epilimnion. When dissolved oxygen levels get below 1.0 mg/L phosphorus may be released from bottom sediments.
- RECOMMENDED ACTIONS:** Increase monitoring frequency to sample at least once annually, or once per month during the summer. This will help to better assess summer water quality and historical trend analysis. Conductivity appears to be increasing in the lake. Encourage local road agents to obtain a Voluntary NH Salt Applicator license through the UNH Technology Transfer Center's (T2) Green SnoPro Certification Program.



NH Water Quality Standards: Numeric criteria for specific parameters. Results exceeding criteria are considered a water quality violation.

Chloride: < 230 mg/L (chronic)

E. coli: > 88 cts/100 mL – public beach

E. coli: > 406 cts/100 mL – surface waters

Turbidity: > 10 NTU above natural level

pH: 6.5-8.0 (unless naturally occurring)

Station Name	Table 1. 2013 Average Water Quality Data for FOREST LAKE								
	Alk.	Chlor-a	Cond.	E. Coli	Total P	Trans.		Turb.	pH
	mg/l	ug/l	uS/cm	#/100ml	ug/l	m		ntu	
						NVS	VS		
Epilimnion	8.90	1.58	42.6		6	3.55	4.80	0.48	7.34
Hypolimnion			44.9		8			0.71	6.82
North Inlet			43.7	1	6			0.57	7.17
Outlet			43.1	1	9			0.54	7.28
State Beach Brook			61.0	2	44			2.38	6.48
Sundman Cottage			43.5	1	5			0.47	7.31
Winslow Cottage			43.6	1	8			0.66	7.28
Wright Cottage			43.3	1	6			0.83	7.15

NH Median Values: Median values for specific parameters generated from historic lake monitoring data.

Alkalinity: 4.9 mg/L

Chlorophyll-a: 4.58 mg/m³

Conductivity: 40.0 uS/cm

Chloride: 4 mg/L

Total Phosphorus: 12 ug/L

Transparency: 3.2 m

pH: 6.6

HISTORICAL WATER QUALITY TREND ANALYSIS

Parameter	Trend	Explanation	Parameter	Trend	Explanation
pH	N/A	Ten consecutive years of data necessary.	Chlorophyll-a	N/A	Ten consecutive years of data necessary.
Conductivity	N/A	Ten consecutive years of data necessary.	Transparency	N/A	Ten consecutive years of data necessary.
			Phosphorus (epilimnion)	N/A	Ten consecutive years of data necessary.

